

**EN181209 “Gbely” Fireball**  
 December 18, 2009, T = 23<sup>h</sup> 04<sup>m</sup>13.5<sup>s</sup> ± 0.3<sup>s</sup> \*

**Atmospheric trajectory data**

	<b>Beginning</b>	<b>Max. light</b>	<b>Terminal</b>
<b>Velocity (km/s)</b>	26.52 ± 0.03	18.3	13.7 ± 0.5
<b>Height (km)</b>	73.35 ± 0.02	32.2	28.82 ± 0.02
<b>Longitude (° E)</b>	17.1307 ± 0.0014	17.126	17.1257 ± 0.0017
<b>Latitude (° N)</b>	48.50776 ± 0.00005	48.787	48.80984 ± 0.00007
<b>Initial mass (kg)</b>	13.	7.	less than 0.05
<b>Absolute magnitude</b>	-	-11.1	-
<b>Zenith distance (°)</b>	37.08 ± 0.08	-	37.38 ± 0.08
<b>Total length (km)/Duration (s)</b>	55.94 / 2.19		
<b>Fireball type/PE</b>	I / -4.16		
<b>EN stations No.</b>	26 Martinsberg, 22 Lomnický Štít, 4 Churáňov		

**Radiant data (J2000.0)**

	<b>Observed</b>	<b>Geocentric</b>	<b>Heliocentric</b>
<b>Right ascension (°)</b>	91.11 ± 0.23	90.40 ± 0.24	-
<b>Declination (°)</b>	11.41 ± 0.08	9.55 ± 0.08	-
<b>Ecliptical longitude (°)</b>	-	-	36.11 ± 0.10
<b>Ecliptical latitude (°)</b>	-	-	-8.82 ± 0.05
<b>Initial velocity (km/s)</b>	26.53 ± 0.03	24.07 ± 0.04	37.68 ± 0.08

**Orbital data (J2000.0)**

<b>a (AU)</b>	2.31 ± 0.04	<b>ω (°)</b>	92.7 ± 0.5
<b>e</b>	0.768 ± 0.003	<b>Ω (°)</b>	87.03768 ± 0.00004
<b>q (AU)</b>	0.536 ± 0.003	<b>i (°)</b>	11.31 ± 0.07
<b>Q (AU)</b>	4.09 ± 0.07	<b>Period</b>	3.52 ± 0.09

**Note**

\*Time of the fireball is given for the beginning of the light curve record taken by the brightness sensors of the autonomous fireball observatories at 10 stations of the EN in Czech Republic, Austria and Slovakia.